

STEAM TRAPS

#14

THE LINTON MACHINE CO.
26 CORTLANDT STREET
NEW YORK, N. Y.

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POWERS REGULATORS
CARRIED IN STOCK

THE KOMO

STEAM TRAP

(PATENTED)

For the separation of the water of condensation
from steam from any source where
economy is desired.



MANUFACTURED BY
THE LINTON MACHINE CO.
NEW YORK

Frank F. Glenn
711 HARTSON B'LD'G. PHILA., PA.

LINTON MACHINE COMPANY, NEW YORK

ABOUT TRAPS.

In operating any kind of a machine, apparatus or system in which steam is used, the removal of condensation without the loss of any steam or pressure is of the utmost importance, as its presence therein reduces the efficiency of the steam for either heating or power purposes.

The only satisfactory manner of removing this condensation is by means of a steam trap. If the trap allows the escape of steam when it is discharging condensation, its efficiency is doubtful. The loss of steam through a steam trap which works improperly or is of faulty design, is in many cases very great, as it reduces the pressure and causes increased fuel consumption, and is nearly always unnoticed because the trap may discharge direct into a sewer or a receiver where the steam condenses very rapidly.

Therefore to give complete satisfaction a trap must be constructed so that it will prevent the loss of any steam or reduction of pressure and reduce the fuel consumption. Furthermore it must discharge as rapidly as the condensation is delivered to it without any backing up into the system with consequent reduction of efficiency. This can only be secured through accurate operation and control which are salient features of the KOMO STEAM TRAP.

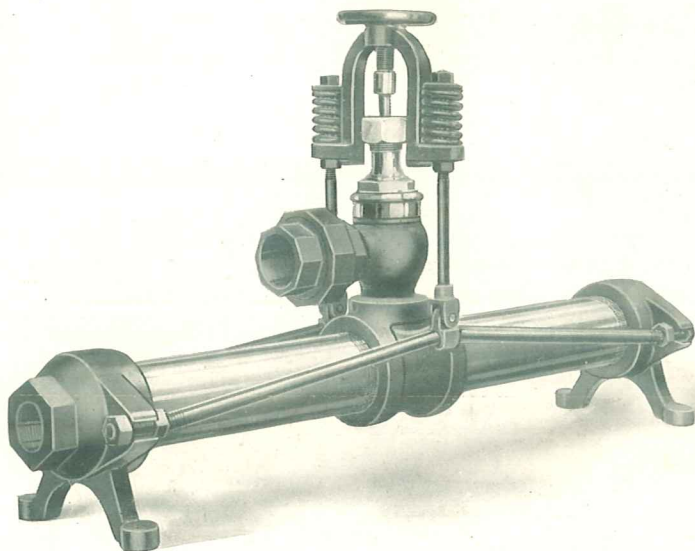
An improved application of the thermostatic principle is employed in the KOMO, which should not be confused with the ordinary "expansion" trap, as its construction is entirely different. Properly used, the expansion and contraction of metal, due to changes of temperature, is the most positive and powerful method of securing absolute control of the valve orifice, so necessary for the reliable operation of any steam trap.

That we have applied this principle successfully has been thoroughly demonstrated, for the KOMO is not a new device, but has given satisfaction for many years in some of the largest and best known plants in the country under the most exacting conditions.

DESCRIPTION.

The receiver tubes are constructed of a special composition metal very sensitive to changes of temperature and their movement due to expansion and contraction is communicated to the discharge valve by the bowed side rods.

These rods positively control the operation of the valve and their movement at the point of application to the vertical rods, which open the valve, is ten times that of the receiver tubes. This multiplication insures the FULL OPENING of the valve when the trap is in operation.



To the lower part of the discharge valve is attached an inner tube which extends to within a short distance of the bottom of the receiver tubes. This acts as a seal; preventing at any time the discharge of steam with the water from the trap. As the water is being discharged up through this tube and thence out of the angle valve, steam, entering the trap, travels along through the upper part of the receiver tubes but cannot escape through the valve on account of this seal. Therefore there is no permanent seal of three or four inches of water required, as in other types of traps, with the disadvantage of having its continually cooling surface coming in contact with the steam, thus causing unnecessary condensation.

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The end castings are of heavy close grained gray iron provided with standard pipe threads, into either of which the discharge pipe from the system may be connected, the other end being plugged. These end castings are provided with lugs, upon which the trap rests. The bowed side rods are attached to the side lugs and secured in place with heavy cold punched hexagonal nuts.

In the construction of the KOMO, strong side springs are used to balance the pressure underneath the disc of the valve, holding it tight to its seat and preventing any escape of steam. The springs rest upon the yoke which holds them in position upon the upright rods and this yoke is connected to the valve stem and disc by a brass spindle. The springs also allow the KOMO to operate under a varying steam pressure, which cannot be done by any other trap of the expansion type. As the steam pressure falls in the trap the spring pressure upon the yoke follows down this loss and holds the disc tight to its seat until condensation enters the trap, when it opens and discharges.

A handwheel is placed on the spindle so that the valve may be opened or closed in the same manner as any other valve. This, however, is only to be used in adjusting the trap when it is first placed in use, or when it is desired to clean it.

ADVANTAGES.

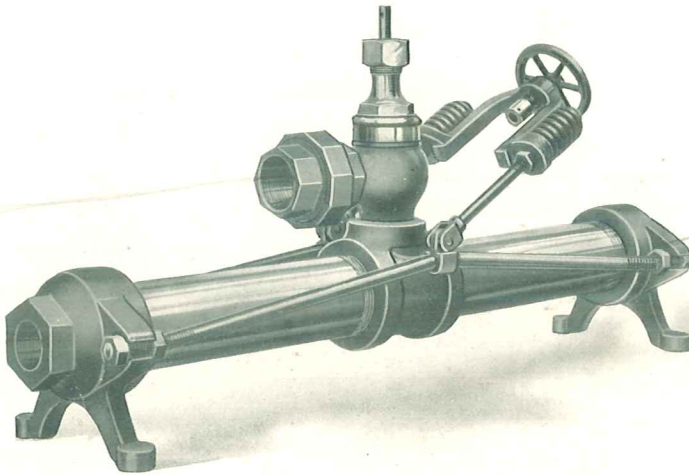
The simple construction of the KOMO is one of its greatest advantages. It becomes practically a part of the piping and requires no support. It may be hung upon the wall or placed in almost any location. This saves the floor space which might be taken up by large cast iron pots or reservoirs, which are not only frequently hard to locate but present large condensing surfaces to the atmosphere. The KOMO is free from any complicated mechanism and requires no attention.

The valve is placed on the outside of the KOMO above the water line, making the renewal of the disc, the only wearing part of the entire trap, merely a matter of seconds, as the interior may be reached by simply throwing the yoke and adjustment to one side upon the hinged upright rods, as shown in the cut on page 5. The bonnet is then removed as from any other valve. This makes the working parts of the KOMO particularly accessible as there are no covers to remove, bolts to take out, pipes to disconnect and connect, joints to pack or renew with gaskets should it become necessary to replace a disc that has become worn from long and hard service.

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The capacity of any trap depends upon the area of the actual discharge valve or opening regardless of the size of the pipe connections. Other traps have an actual discharge orifice of only about one-eighth of the area of the pipe connections. This makes it impossible for them to promptly discharge floods or slugs of water which may be delivered to them.

The area of the valve opening or discharge orifice in the KOMO trap is equal to that of the pipe connections, permitting an instantaneous discharge of all the condensation as quickly as it is formed and delivered to it, but retaining all the steam in the system.



The KOMO cannot become air bound. Neither can it freeze, and it will therefore operate out of doors in the coldest weather. When steam is shut off on a system to which a KOMO is attached, the trap opens and drains all water from the line, remaining open until steam is turned on again and reaches the receiver tubes. The trap therefore immediately takes care of the first rushes of condensation and air.

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The KOMO is positive and reliable in its action at all times but if desired a gauge glass may be connected to the trap as illustrated in the cut on page 9 so that its operation may be observed. When the trap is in operation the condensation will maintain a height in the glass on a level with the centre of the receiver tubes, showing that it is discharging all the condensation as it is delivered to it.

The KOMO will discharge against any pressure less than that of the steam under which it is operating. It will also lift and discharge condensation a height of about two feet for each pound of steam pressure carried.

All KOMO traps are built to operate under any pressure from 250 pounds live steam down to that of exhaust steam and they can be operated under these varying pressures by the mere adjustment of the handwheel. It is therefore unnecessary to secure new valves or parts for the KOMO, as with other traps, when changing from one pressure to another.

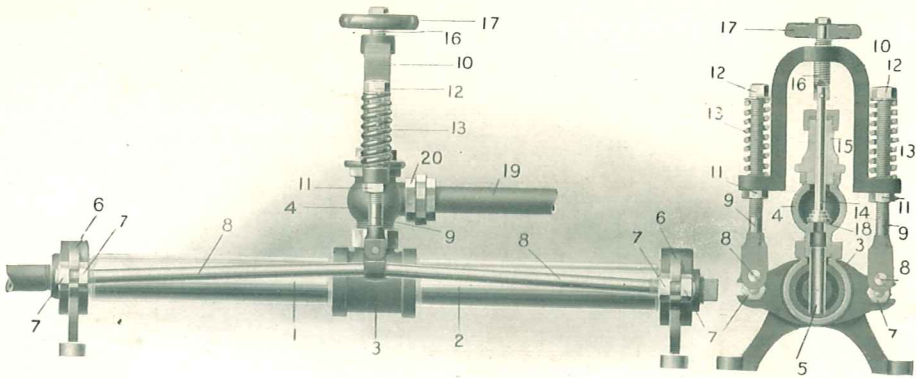
ADAPTABILITY.

The KOMO is the general utility trap for use on high or low pressure steam draining condensation positively and economically from stacks of pipe, for indirect radiation, with or without a blower, live steam heating systems, engine cylinders, steam separators, jacketed kettles, dry rooms, heaters, vulcanizers, drying cans or laundry machinery.

For sugar refineries and all plants having vacuum pans in use, breweries, bleacheries, coal mines, laundries, oil works, paper mills and all other concerns using a large amount of steam and having heavy condensation to contend with, the KOMO has proved its superiority over any other trap as it works with ease and regularity, keeping the machine free from all condensation.

For railroad car heating or marine service, the KOMO has no equal, as its action or operation is not effected by jarring or rolling conditions.

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HOW THE KOMO OPERATES.

As water from the steam collects, the receiving tubes 1 and 2 cool and contract, bringing the brackets 6 toward each other and bend the bowed side rods 8 so that they rise in the middle, forcing the vertical rods 9 upward. The lower nuts 11 on the vertical rods then come in contact with and raise the yoke 10 which causes the valve stem 16 to lift the valve from its seat 18. The water then rises from the receiving tubes up through the inner tube 5, and escapes through the valve 4 and outlet 19. As the water leaves the receivers 1 and 2, steam enters, expanding the tubes 1 and 2 by its higher temperature, so that the brackets 6 move further apart pulling the horizontal rods 8 nearer a straight line and lowering the vertical rods 9 with their nuts 11 until the valve 14 is reseated. Excessive expansion of the receiving tubes will merely cause the lower nuts 11 on vertical rods 9 to be drawn further below the ends of the yoke, and the valve will be held to its seat by the stronger pressure of the springs, until contraction of the receiving tubes brings the lower nuts 11 again in contact with the ends of the yoke to raise the same, again unseating the valve and repeating the operation.

The inner tube, extending from the base of the valve to near the bottom of the trap, forms a pocket or water seal, so that steam entering the receiving tubes has time to expand and close the valve before water is entirely expelled and steam allowed to escape.

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PRICES, DIMENSIONS, ETC.

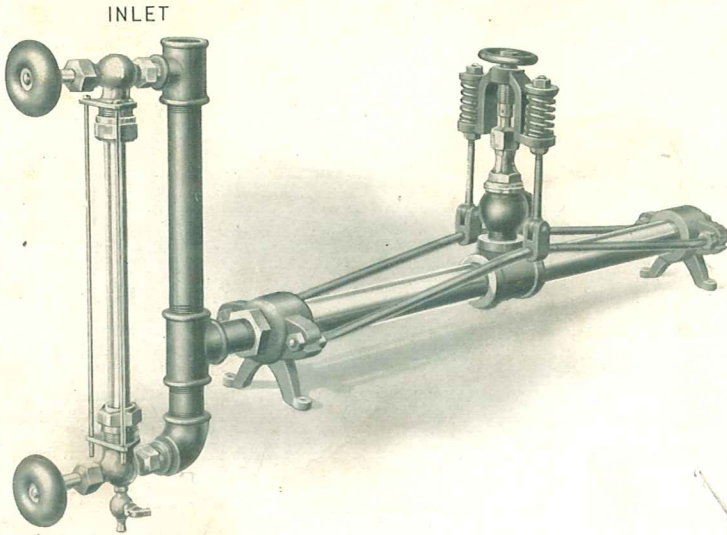
SIZE	Pipe Con- nec- tion	Lineal Feet of 1-in. Pipe	Square Feet of Radiation	Length	Width	Height	Weight	Price
	INCH			INCH	INCH	INCH	LBS.	
1	$\frac{1}{2}$	2,000	700	20	$3\frac{3}{4}$	$8\frac{1}{4}$	7	\$17.50
2	$\frac{3}{4}$	3,500	1,165	22	$4\frac{3}{4}$	$9\frac{1}{2}$	10	22.50
3	1	6,000	2,000	25	$5\frac{1}{4}$	$10\frac{1}{2}$	16	27.50
4	$1\frac{1}{4}$	10,000	3,500	27	$5\frac{3}{4}$	$11\frac{1}{2}$	25	35.00
5	$1\frac{1}{2}$	15,000	5,000	29	$6\frac{1}{4}$	$13\frac{1}{2}$	32	50.00
6	2	32,500	10,835	38	$8\frac{1}{2}$	19	65	85.00
7	$2\frac{1}{2}$	45,000	15,000	40	$9\frac{1}{2}$	21	85	105.00
8	3	62,000	21,000	44	$10\frac{1}{2}$	23	110	125.00

ATTENTION.

The lineal feet and square feet of radiation, as listed in the above table of capacities, are based upon ordinary condensing conditions from heating apparatus, which, of course, will vary according to pressure, service and exposure.

For other service, we will be pleased to give information covering trap problems upon receipt of description as to pressure, location, service, etc., under which the trap is to operate, and to submit sketches of layouts, and to those so desiring, we will refer to either manufacturers in the same line or to plants in the same locality as to the merits of the KOMO.

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TRIAL OFFER.

The KOMO Steam Trap is shipped subject to thirty days test and trial under the working conditions for which it is required, and should it not prove satisfactory, it may be returned at our expense.

WITH ORDER KINDLY STATE STEAM PRESSURE and condition under which trap is to operate.

Buy a KOMO WITH A CAPACITY equal to the maximum amount of condensation to be taken care of, then regulate the trap as per directions, and your trap troubles will be ended.

For extremely low pressure the traps are built with extra large valve outlets to suit requirements.

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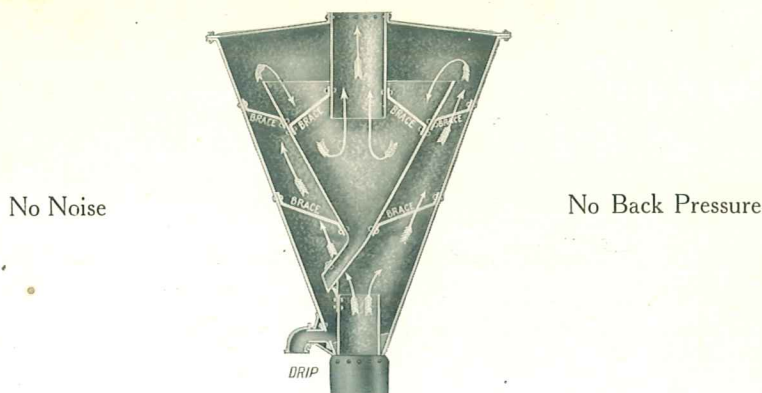
DIRECTIONS

For Installing and Operating the KOMO Steam Trap.

1. To attach: The inlet pipe may be connected to either end and the other end must be plugged. The outlet is from the angle valve.
2. After attaching and before steam is turned into trap, always see that valve is opened wide by turning handwheel same as an ordinary valve.
3. To adjust: After steam has been turned into trap, let it blow through until trap becomes thoroughly heated, and the receiver tubes expanded. Then simply turn the handwheel from 1-4 to 1-2 turn after the valve has been seated, and the trap is set.
4. When a certain temperature of discharge is required, turn handwheel down after valve is seated until discharge is at the desired temperature.
5. The KOMO will discharge against any back pressure less than that of the head pressure.
6. The handwheel may be used to by-pass the valve in order to remove any dirt or scale from the trap.

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THE LINTON EXHAUST HEAD.



It will prevent the greasy spray from the exhaust steam from spattering over the roofs, windows, walks and clothing.

Saves Repairs to Roofs.

Strongly made of galvanized iron, simple in construction and very effective. Applicable to all exhaust pipes and shipped ready to be connected.

Price List, Subject to Discount.

Diameter of Exhaust	PRICE
1 or 1½ inch pipe.....	\$20.00
2 " 2½ " "	25.00
3 " 3½ " "	30.00
4 " 4½ " "	40.00
5 " " "	50.00
6 " " "	60.00
7 " " "	75.00

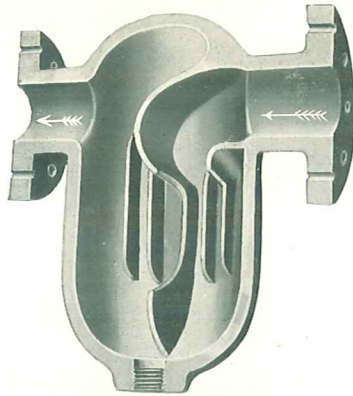
Diameter of Exhaust	PRICE
8 inch pipe.....	\$ 90.00
9 " "	105.00
10 " "	125.00
12 " "	150.00
14 " "	200.00
15 " "	235.00
16 " "	250.00

We will send one on trial if you write us the size of your exhaust pipe.

THE LINTON STEAM SEPARATOR.

Wet steam is not only uneconomical and prevents engines or pumps from running smoothly, but frequently causes serious accidents.

Although we admit the impossibility of removing 100% of the moisture from live steam we guarantee the Linton Steam Separator to catch all but such a very small percentage that the leaving steam will be practically dry.



The steam in passing through this separator does not meet any obstruction at right angles but is deflected in an easy path without shock. The deflector is curved so that the water is instantly thrown to the side of the separator striking it at a gentle angle and flowing down into the bottom of the reservoir through the channels formed by the deep ribs on the sides and being undisturbed by the passing steam. The diaphragm at the bottom checks any further movement of this water. The steam passes up through the opening in the diaphragm to the outlet side, making an abrupt turn in so doing and any moisture remaining in it is thrown to the bottom by centrifugal force. A ship-snapping action being produced.

Linton Separators are made in the horizontal and vertical types and are built for any steam pressure. We also manufacture special receiver type separators.

Furnished on trial returnable if unsatisfactory.

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PRICE LIST AND DIMENSIONS OF THE LINTON STEAM SEPARATOR

Size of Pipe	Horizontal Style		Vertical Style		Price of either style, subject to discount
	Extreme Height	Distance between faces of nozzles, not including companion flanges	Diameter of Body	Distance between faces of nozzles, not including companion flanges	
1½"	14"	10"	7½"	15"	\$30.00
2	14	13½	9	17	40.00
2½	15	13½	10	17	45.00
3	18	15	11	20	50.00
3½	19	15	12	20	60.00
4	20	15½	12	22	70.00
4½	21	15½	13	22	75.00
5	23	16½	14	24	80.00
6	26	17½	16	27	110.00
7	30	19½	17	30	125.00
8	34	21	18	35	160.00
10	40	24	19½	37	220.00
12	47	27	21	39	250.00

With each Separator are included two Companion Flanges with Bolts and one set of good quality Gauge Glass Fittings.

THE LINTON MUFFLER AND OIL EXTRACTOR

The Linton Muffler and Oil Extractor not only muffles all sound made by the exhaust steam but thoroughly separates and removes from it all particles of cylinder oil so that it may be used in heating systems without detriment to valves, etc., and the returns, pure distilled water, safely used for boiler feeding.

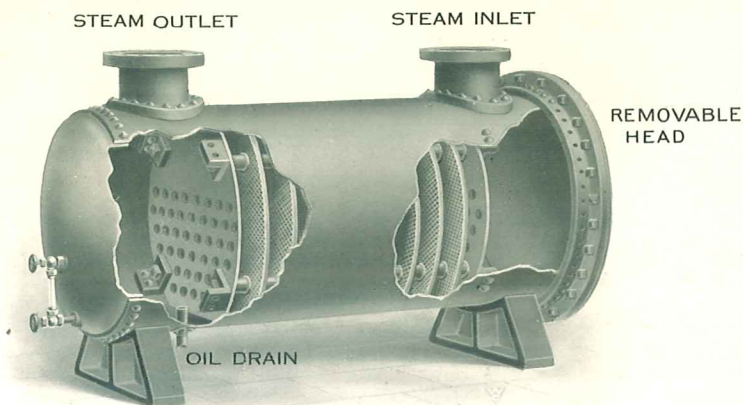
The extractor is made of heavy boiler plate and the best quality of wire mesh oil separating screens.

The exhaust steam enters the large expansion chamber, where its velocity is greatly reduced and where all but a very small percentage of the oil held in suspension, is precipitated to the surface of the water held in the bottom of the shell. It is impossible for the steam to pick up any of this oil in its passage through the extractor. The steam then passes through a large number of wire mesh self-cleaning screens. These screens are an absolutely dependable device for the extraction of the small particles of oil from the exhaust steam which can not be taken out by expansion, baffles or by any other method except screens. The clean steam then passes through the steam outlet to the system. The oil is discharged through the oil drip.

The exhaust inlet and outlet may be placed on the top, side, bottom or ends of the extractor making it very adaptable for all piping conditions.

The Linton Muffler and Oil Extractor is guaranteed to be just as efficient after years of usage as when first placed in operation.

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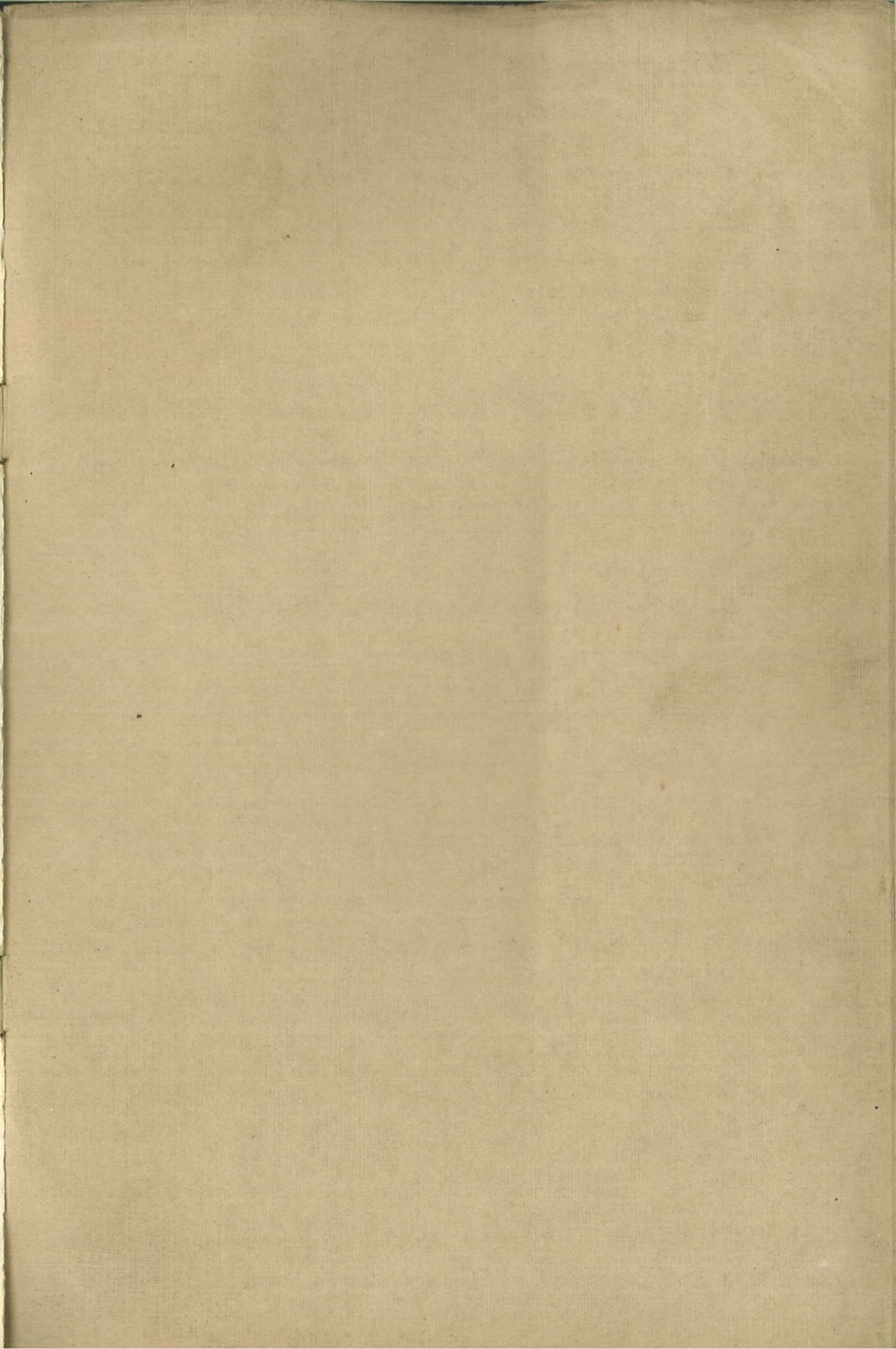


DIMENSIONS AND PRICES

No.	Diameter	Length	Exhaust Ports	No. of Screens	Oil Drain	PRICE
1	18"	42"	5 "	4	1½"	\$200.00
2	24	48	6	4	1½	300.00
3	30	60	8	6	1½	365.00
4	36	72	10	8	1½	480.00
5	40	84	12	10	1½	600.00
6	40	96	14	12	1½	675.00
7	48	108	16	14	1½	800.00
8	54	120	18	16	1½	925.00
9	54	132	20	18	1½	1100.00

Complete Specifications of any size furnished upon application.

PLIMPTON MFG. CO.,
HARTFORD AND NEW YORK



231/11

45 lbs
70 gals

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